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Drainage Calculations

Client:	Paramount Building Contractor
Architect:	HSSP Architects
Project:	11 Sapcote Road
Project No:	26-22646
Document No:	0-010
Issue:	Rev P1: Jun 2026
Status:	Preliminary
Date:	23rd June 206
Engineer:	LM

Issue Status:
A=Approval
B=Building Regulations
C=Construction
D=Draft
P=Preliminary
R=Review
T=Tender
Z=Final Construction

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	19.600	Add Flow / Climate Change (%)	0
Ratio R	0.405	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	12.000	0.120	100.0	0.008	4.00	0.0	0.600	o	150	Pipe/Conduit	
1.001	11.400	0.120	95.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
2.000	12.700	0.130	97.7	0.008	4.00	0.0	0.600	o	150	Pipe/Conduit	
2.001	5.200	0.110	47.3	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.002	8.300	0.090	92.2	0.009	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.003	6.400	0.070	91.4	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.004	22.400	0.230	97.4	0.023	0.00	0.0	0.600	o	150	Pipe/Conduit	
3.000	11.100	0.580	19.1	0.008	4.00	0.0	0.600	o	150	Pipe/Conduit	
1.005	6.700	0.070	95.7	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	4.20	113.550	0.008	0.0	0.0	0.0	1.00	17.8	1.1
1.001	50.00	4.38	113.430	0.008	0.0	0.0	0.0	1.03	18.2	1.1
2.000	50.00	4.21	113.550	0.008	0.0	0.0	0.0	1.02	18.0	1.1
2.001	50.00	4.27	113.420	0.008	0.0	0.0	0.0	1.47	25.9	1.1
1.002	50.00	4.52	113.310	0.025	0.0	0.0	0.0	1.05	18.5	3.4
1.003	50.00	4.62	113.220	0.025	0.0	0.0	0.0	1.05	18.6	3.4
1.004	50.00	4.98	113.150	0.048	0.0	0.0	0.0	1.02	18.0	6.5
3.000	50.00	4.08	113.500	0.008	0.0	0.0	0.0	2.31	40.9	1.1
1.005	50.00	5.09	112.920	0.056	0.0	0.0	0.0	1.03	18.2	7.6

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Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.006	1.500	0.020	75.0	0.030	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.007	1.600	0.310	5.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.006	50.00	5.11	112.850	0.086	0.0	0.0	0.0	1.16	20.5	11.6
1.007	50.00	5.12	112.830	0.086	0.0	0.0	0.0	4.47	78.9	11.6

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Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S1	114.050	0.500	Junction		1.000	113.550	150				
S2	114.050	0.620	Open Manhole	450	1.001	113.430	150	1.000	113.430	150	
S3	114.050	0.500	Junction		2.000	113.550	150				
S4	114.025	0.605	Open Manhole	450	2.001	113.420	150	2.000	113.420	150	
S5	114.050	0.740	Open Manhole	450	1.002	113.310	150	1.001	113.310	150	
								2.001	113.310	150	
S6	114.050	0.830	Open Manhole	450	1.003	113.220	150	1.002	113.220	150	
S7	114.050	0.900	Open Manhole	450	1.004	113.150	150	1.003	113.150	150	
S8	114.050	0.550	Junction		3.000	113.500	150				
S9	114.050	1.130	Open Manhole	1200	1.005	112.920	150	1.004	112.920	150	
								3.000	112.920	150	
S10	114.000	1.150	Junction		1.006	112.850	150	1.005	112.850	150	
S11	113.850	1.020	Open Manhole	1200	1.007	112.830	150	1.006	112.830	150	
F7	113.850	1.330	Open Manhole	0		OUTFALL		1.007	112.520	150	

No coordinates have been specified, layout information cannot be produced.

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	150	S1	114.050	113.550	0.350	Junction	
1.001	o	150	S2	114.050	113.430	0.470	Open Manhole	450
2.000	o	150	S3	114.050	113.550	0.350	Junction	
2.001	o	150	S4	114.025	113.420	0.455	Open Manhole	450
1.002	o	150	S5	114.050	113.310	0.590	Open Manhole	450
1.003	o	150	S6	114.050	113.220	0.680	Open Manhole	450
1.004	o	150	S7	114.050	113.150	0.750	Open Manhole	450
3.000	o	150	S8	114.050	113.500	0.400	Junction	
1.005	o	150	S9	114.050	112.920	0.980	Open Manhole	1200
1.006	o	150	S10	114.000	112.850	1.000	Junction	
1.007	o	150	S11	113.850	112.830	0.870	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	12.000	100.0	S2	114.050	113.430	0.470	Open Manhole	450
1.001	11.400	95.0	S5	114.050	113.310	0.590	Open Manhole	450
2.000	12.700	97.7	S4	114.025	113.420	0.455	Open Manhole	450
2.001	5.200	47.3	S5	114.050	113.310	0.590	Open Manhole	450
1.002	8.300	92.2	S6	114.050	113.220	0.680	Open Manhole	450
1.003	6.400	91.4	S7	114.050	113.150	0.750	Open Manhole	450
1.004	22.400	97.4	S9	114.050	112.920	0.980	Open Manhole	1200
3.000	11.100	19.1	S9	114.050	112.920	0.980	Open Manhole	1200
1.005	6.700	95.7	S10	114.000	112.850	1.000	Junction	
1.006	1.500	75.0	S11	113.850	112.830	0.870	Open Manhole	1200
1.007	1.600	5.2	F7	113.850	112.520	1.180	Open Manhole	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.007	F7	113.850	112.520	0.000	0	0

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Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	3
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.600	Storm Duration (mins)	30
Ratio R	0.405		

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Online Controls for Storm

Hydro-Brake® Optimum Manhole: S11, DS/PN: 1.007, Volume (m³): 1.2

Unit Reference	MD-SHE-0067-2000-1020-2000
Design Head (m)	1.020
Design Flow (l/s)	2.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	67
Invert Level (m)	112.830
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.020	2.0
Flush-Flo™	0.293	1.9
Kick-Flo®	0.597	1.6
Mean Flow over Head Range	-	1.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.6	1.200	2.1	3.000	3.3	7.000	4.9
0.200	1.9	1.400	2.3	3.500	3.5	7.500	5.0
0.300	1.9	1.600	2.5	4.000	3.7	8.000	5.2
0.400	1.9	1.800	2.6	4.500	4.0	8.500	5.3
0.500	1.8	2.000	2.7	5.000	4.2	9.000	5.5
0.600	1.6	2.200	2.8	5.500	4.3	9.500	5.6
0.800	1.8	2.400	3.0	6.000	4.5		
1.000	2.0	2.600	3.1	6.500	4.7		

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Storage Structures for Storm

Porous Car Park Manhole: S6, DS/PN: 1.003

Infiltration Coefficient Base (m/hr)	0.01933	Width (m)	6.8
Membrane Percolation (mm/hr)	1000	Length (m)	13.3
Max Percolation (l/s)	25.1	Slope (1:X)	334.0
Safety Factor	3.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	113.550	Cap Volume Depth (m)	0.320

Cellular Storage Manhole: S10, DS/PN: 1.006

Invert Level (m)	112.850	Safety Factor	3.0
Infiltration Coefficient Base (m/hr)	0.01933	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	35.0	35.0	0.401	0.0	44.6
0.400	35.0	44.6			

Porous Car Park Manhole: S11, DS/PN: 1.007

Infiltration Coefficient Base (m/hr)	0.01932	Width (m)	12.0
Membrane Percolation (mm/hr)	1000	Length (m)	22.3
Max Percolation (l/s)	74.3	Slope (1:X)	70.6
Safety Factor	3.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	113.300	Cap Volume Depth (m)	0.320

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1 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 3
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.405
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 19.600 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status OFF
DVD Status ON
Inertia Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years) 1, 10, 30, 100
Climate Change (%) 0, 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	S1	15 Summer	1	+0%					113.575
1.001	S2	15 Winter	1	+0%	100/15 Summer				113.456
2.000	S3	15 Summer	1	+0%					113.575
2.001	S4	15 Winter	1	+0%	100/15 Summer				113.443
1.002	S5	15 Winter	1	+0%	100/15 Summer				113.357
1.003	S6	15 Winter	1	+0%	100/15 Summer				113.267
1.004	S7	15 Winter	1	+0%	30/15 Summer				113.212
3.000	S8	15 Winter	1	+0%					113.517
1.005	S9	15 Winter	1	+0%	10/15 Winter				112.992
1.006	S10	120 Winter	1	+0%	10/15 Summer				112.975
1.007	S11	60 Winter	1	+0%	1/30 Winter				112.992

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1 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for Storm

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S1	-0.125	0.000	0.07			1.2	OK*	
1.001	S2	-0.124	0.000	0.07			1.2	OK	
2.000	S3	-0.125	0.000	0.07			1.2	OK*	
2.001	S4	-0.127	0.000	0.06			1.2	OK	
1.002	S5	-0.103	0.000	0.21			3.4	OK	
1.003	S6	-0.103	0.000	0.22		7	3.4	OK	
1.004	S7	-0.088	0.000	0.35			6.0	OK	
3.000	S8	-0.133	0.000	0.03			1.2	OK*	
1.005	S9	-0.078	0.000	0.46			7.1	OK	
1.006	S10	-0.025	0.000	0.18		43	2.0	OK*	
1.007	S11	0.012	0.000	0.05		37	1.8	SURCHARGED	

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10 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 3
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.405
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 19.600 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status OFF
DVD Status ON
Inertia Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years) 1, 10, 30, 100
Climate Change (%) 0, 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	S1	15 Summer	10	+0%					113.586
1.001	S2	15 Summer	10	+0%	100/15 Summer				113.467
2.000	S3	15 Summer	10	+0%					113.585
2.001	S4	15 Summer	10	+0%	100/15 Summer				113.453
1.002	S5	15 Summer	10	+0%	100/15 Summer				113.380
1.003	S6	15 Winter	10	+0%	100/15 Summer				113.291
1.004	S7	15 Winter	10	+0%	30/15 Summer				113.252
3.000	S8	15 Winter	10	+0%					113.523
1.005	S9	15 Winter	10	+0%	10/15 Winter				113.097
1.006	S10	15 Winter	10	+0%	10/15 Summer				113.093
1.007	S11	360 Summer	10	+0%	1/30 Winter				113.036

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10 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for Storm

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S1	-0.114	0.000	0.13			2.3	OK*	
1.001	S2	-0.113	0.000	0.14			2.3	OK	
2.000	S3	-0.115	0.000	0.13			2.3	OK*	
2.001	S4	-0.117	0.000	0.11			2.3	OK	
1.002	S5	-0.080	0.000	0.44			7.1	OK	
1.003	S6	-0.079	0.000	0.45		6	7.0	OK	
1.004	S7	-0.048	0.000	0.78			13.2	OK	
3.000	S8	-0.127	0.000	0.06			2.3	OK*	
1.005	S9	0.027	0.000	0.96			14.7	SURCHARGED	
1.006	S10	0.093	0.000	0.23		44	2.4	SURCHARGED*	
1.007	S11	0.056	0.000	0.05		72	1.9	SURCHARGED	

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30 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 3
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.405
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 19.600 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status OFF
DVD Status ON
Inertia Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years) 1, 10, 30, 100
Climate Change (%) 0, 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	S1	15 Summer	30	+0%					113.590
1.001	S2	15 Summer	30	+0%	100/15 Summer				113.472
2.000	S3	15 Summer	30	+0%					113.590
2.001	S4	15 Summer	30	+0%	100/15 Summer				113.457
1.002	S5	15 Winter	30	+0%	100/15 Summer				113.390
1.003	S6	15 Summer	30	+0%	100/15 Summer				113.330
1.004	S7	15 Summer	30	+0%	30/15 Summer				113.309
3.000	S8	15 Winter	30	+0%					113.526
1.005	S9	15 Summer	30	+0%	10/15 Winter				113.133
1.006	S10	15 Winter	30	+0%	10/15 Summer				113.165
1.007	S11	480 Winter	30	+0%	1/30 Winter				113.075

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30 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for Storm

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S1	-0.110	0.000	0.16			2.9	OK*	
1.001	S2	-0.108	0.000	0.18			2.9	OK	
2.000	S3	-0.110	0.000	0.16			2.9	OK*	
2.001	S4	-0.113	0.000	0.14			2.9	OK	
1.002	S5	-0.070	0.000	0.56			9.0	OK	
1.003	S6	-0.040	0.000	0.55		3	8.6	OK	
1.004	S7	0.009	0.000	0.93			15.9	SURCHARGED	
3.000	S8	-0.124	0.000	0.07			2.9	OK*	
1.005	S9	0.063	0.000	1.13			17.4	SURCHARGED	
1.006	S10	0.165	0.000	0.24		59	2.6	SURCHARGED*	
1.007	S11	0.095	0.000	0.05		92	1.9	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 3
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.405
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 19.600 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status OFF
DVD Status ON
Inertia Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years) 1, 10, 30, 100
Climate Change (%) 0, 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	S1	15 Summer	100	+40%					113.680
1.001	S2	15 Winter	100	+40%	100/15 Summer				113.677
2.000	S3	15 Summer	100	+40%					113.674
2.001	S4	15 Winter	100	+40%	100/15 Summer				113.670
1.002	S5	15 Winter	100	+40%	100/15 Summer				113.662
1.003	S6	15 Summer	100	+40%	100/15 Summer				113.597
1.004	S7	15 Summer	100	+40%	30/15 Summer				113.575
3.000	S8	15 Winter	100	+40%					113.538
1.005	S9	15 Summer	100	+40%	10/15 Winter				113.487
1.006	S10	30 Winter	100	+40%	10/15 Summer				113.251
1.007	S11	1440 Winter	100	+40%	1/30 Winter				113.053

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100 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for Storm

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	S1	-0.020	0.000	0.28			4.9	OK*	
1.001	S2	0.097	0.000	0.25			4.2	SURCHARGED	
2.000	S3	-0.026	0.000	0.28			4.9	OK*	
2.001	S4	0.100	0.000	0.20			4.2	SURCHARGED	
1.002	S5	0.202	0.000	0.82			13.3	SURCHARGED	
1.003	S6	0.227	0.000	0.74		4	11.6	SURCHARGED	
1.004	S7	0.275	0.000	1.20			20.4	SURCHARGED	
3.000	S8	-0.112	0.000	0.13			5.2	OK*	
1.005	S9	0.417	0.000	1.48			22.8	SURCHARGED	
1.006	S10	0.251	0.000	2.08		183	22.6	SURCHARGED*	
1.007	S11	0.073	0.000	0.05		152	1.9	SURCHARGED	

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